

WHAT IS CLAIMED IS:

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A method of reproducing at least first images and second images simultaneously, synchronizing the first images with the second images, the method comprising the processes of:

reading first image data which is compressed data representing the first images and second image data which is compressed data representing the second images from a recording medium;

storing the first image data read from the recording medium into a first memory device and storing the second image data read from the recording medium into a second memory device; and

separately and simultaneously decoding the first image data stored in the first memory device and the second image data stored in the second memory device by using a first decoding device for decoding the first image data and a second decoding device for decoding the second image data,

wherein, on the recording medium, each of the first image data and the second image data is divided into a plurality of data units each having an equal time length and an equal data size, each of the data units of the first image data and each of the data units of the second image data are alternately arranged on the recording medium, the data units are sequentially read from the recording medium in an order of an arrangement of the data units recorded on the recording medium, the process of storing the first image data and the process of storing the second image data are alternately carried out for each of the data units,

and the process of decoding the first image data and the process of the second image data are carried out at a same decoding rate in a parallel manner.

2. The method according to claim 1, wherein the first image data and the second image data are recorded on the recording medium in accordance with a DVD standard, and each of the plurality of data units includes one or a plurality of video object units (VOBUs).

3. The method according to claim 1, wherein the first image data and the second image data are generated by converting variable rate compressed data compressed by using an MPEG (Moving Picture Expert Group) compression method into fixed rate compressed data.

4. The method according to claim 1, wherein, on the recording medium, a plurality of data sets each comprising one of the data units of the first image data and one of the data units of the second image data that is located next to the one of the data units of the first image data include audio data respectively, and the audio data is decoded in a way that a reproduction of the audio data is synchronized with a reproduction of the first images and a reproduction of the second images.

5. The method according to claim 1, wherein, on the recording medium, a plurality of data sets each comprising one of the data units of the first image data and one of the data units of the second image data that is located next to the one of the data units of the first image data

include synchronization data respectively, and the process of decoding the first image data and the second image data are carried out by using the synchronization data so as to synchronize a reproduction of the first images with a reproduction of the second images.

6. The method according to claim 1 further comprising the process of monitoring an amount of the first image data stored in the first memory device and an amount of the second image data stored in the second memory device in order to prevent overflow or underflow in the first memory device and overflow or underflow in the second memory device.

7. An apparatus for reproducing at least first images and second images simultaneously, synchronizing the first images with the second images, the apparatus comprising:

- a reading device for reading first image data which is compressed data representing the first images and second image data which is compressed data representing the second images from a recording medium;

- a first memory device for storing the first image data read from the recording medium;

- a second memory device for storing the second image data read from the recording medium;

- a first decoding device for decoding the first image data stored in the first memory device; and

- a second decoding device for decoding the second image data

stored in the second memory device,

wherein, on the recording medium, each of the first image data and the second image data is divided into a plurality of data units each having an equal time length ~~and an equal data size~~, each of the data units of the first image data and each of the data units of the second image data are alternately arranged on the recording medium, the reading device sequentially reads the data units from the recording medium in an order of an arrangement of the data units recorded on the recording medium, an operation of storing the first image data into the first memory device and an operation of storing the second image data into the second memory device are alternately carried out for each of the data units, and the first decoding device and the second decoding device separately and simultaneously decode the first image data and the second image data at a same decoding rate.

8. The apparatus according to claim 7, wherein the first image data and the second image data are recorded on the recording medium in accordance with a DVD standard, and each of the plurality of data units includes one or a plurality of video object units (VOBUs).

9. The apparatus according to claim 7, wherein the first image data and the second image data are generated by converting variable rate compressed data compressed by using an MPEG (Moving Picture Expert Group) compression method into fixed rate compressed data.

10. The apparatus according to claim 7, wherein, on the recording

medium, a plurality of data sets each comprising one of the data units of the first image data and one of the data units of the second image data that is located next to the one of the data units of the first image data include audio data respectively, and the audio data is decoded in a way that a reproduction of the audio data is synchronized with a reproduction of the first images and a reproduction of the second images.

11. The apparatus according to claim 7, wherein, on the recording medium, a plurality of data sets each comprising one of the data units of the first image data and one of the data units of the second image data that is located next to the one of the data units of the first image data include synchronization data respectively, and the first decoding device and the second decoding device decode the first image data and the second image data by using the synchronization data so as to synchronize a reproduction of the first images with a reproduction of the second images.

12. The apparatus according to claim 7 further comprising a monitoring device for monitoring an amount of the first image data stored in the first memory device and an amount of the second image data stored in the second memory device in order to prevent overflow or underflow in the first memory device and overflow or underflow in the second memory device.

13. A method of recording at least first image data which is compressed data representing first images and the second image data

which is compressed data representing second images onto a recording medium, the method comprising the processes of:

dividing each of the first image data and the second image data into a plurality of data units each having an equal time length and an equal data size;

generating a data stream in which the data units of the first image data are arranged in a reproduction order, in which the data units of the second image data are arranged in a reproduction order, and in which each of the data units of the first image data and each of the data units of the second image data are alternately arranged; and

recording the data stream onto the recording medium.

14. The method according to claim 13, wherein the data stream is generated in accordance with a DVD standard, and each of the plurality of data units includes one or a plurality of video object units (VOBUs).

15. The method according to claim 13, wherein the first image data and the second image data are generated by converting variable rate compressed data compressed by using an MPEG (Moving Picture Expert Group) compression method into fixed rate compressed data.

16. The method according to claim 13, wherein a plurality of data sets each comprising one of the data units of the first image data and one of the data units of the second image data that is located next to the one of the data units of the first image data are formed in the data stream, and audio data is added to each of the plurality of data sets in

the process of generating the data stream.

17. The method according to claim 13, wherein a plurality of data sets each comprising one of the data units of the first image data and one of the data units of the second image data that is located next to the one of the data units of the first image data are formed in the data stream, and synchronization data is added to each of the plurality of data sets in the process of generating the data stream.

18. An apparatus for recording at least first image data which is compressed data representing first images and the second image data which is compressed data representing second images onto a recording medium, the apparatus comprising:

a dividing device for dividing each of the first image data and the second image data into a plurality of data units each having an equal time length and an equal data size;

a generating device for generating a data stream in which the data units of the first image data are arranged in a reproduction order, in which the data units of the second image data are arranged in a reproduction order, and in which each of the data units of the first image data and each of the data units of the second image data are alternately arranged; and

a recording device for recording the data stream onto the recording medium.

19. The apparatus according to claim 18, wherein the data stream

is generated in accordance with a DVD standard, and each of the plurality of data units includes one or a plurality of video object units (VOBUs).

20. The apparatus according to claim 18, wherein the first image data and the second image data are generated by converting variable rate compressed data compressed by using an MPEG (Moving Picture Expert Group) compression method into fixed rate compressed data.

21. The apparatus according to claim 18, wherein a plurality of data sets each comprising one of the data units of the first image data and one of the data units of the second image data that is located next to the one of the data units of the first image data are formed in the data stream, and the generating device adds audio data to each of the plurality of data sets.

22. The apparatus according to claim 18, wherein a plurality of data sets each comprising one of the data units of the first image data and one of the data units of the second image data that is located next to the one of the data units of the first image data are formed in the data stream, and the generating device adds synchronization data to each of the plurality of data sets.